considered positive means of protection against creep.

[CGD 95–027, 61 FR 26001, May 23, 1996, as amended by USCG–1999–5151, 64 FR 67180, Dec. 1, 1999]

§ 56.30–40 Flexible pipe couplings of the compression or slip-on type.

(a) Flexible pipe couplings of the compression or slip-on type must not be used as expansion joints. To ensure that the maximum axial displacement (approximately ⅜″ maximum) of each coupling is not exceeded, positive restraints must be included in each installation.

(b) Positive means must also be provided to prevent the coupling from ''creeping'' on the pipe and uncovering the joint. Bite type devices do not provide positive protection against creeping and are not generally accepted for this purpose unless other means are also incorporated. Machined grooves or centering pins are considered positive means, and other positive means will be considered.

(c) Couplings which employ a solid sleeve with welded attachments on both pipes will require the removal of one set of attachments before dismantling. Rewelding of the attachments may require gas freeing of the line.

(d) The installation shall be such as to preclude appreciable difference in the vibration magnitudes of the pipes joined by the couplings. The couplings shall not be used as a vibration damper. The vibration magnitude and frequency should not exceed that recommended by the coupling manufacturer.

(e) Flexible couplings made in accordance with the applicable standards listed in Table 56.60–1(b) of this part and of materials complying with subpart 56.60 of this part may be used within the material, size, pressure, and temperature limitations of those standards and within any further limitations specified in this subchapter. Flexible couplings fabricated by welding must also comply with part 57 of this chapter.

(f) Flexible couplings must not be used in cargo holds or in any other space where leakage, undetected flooding, or impingement of liquid on vital equipment may disable the ship, or in tanks where the liquid conveyed in the piping system is not compatible with the liquid in the tank. Where flexible couplings are not allowed by this subpart, joints may be threaded, flanged and bolted, or welded.

(g) Damaged or deteriorated gaskets shall not be reinstalled.

(h) Each coupling shall be tested in accordance with § 56.97–5.

[CGFR 68–82, 33 FR 18843, Dec. 18, 1968, as amended by CGD 77–140, 54 FR 40606, Oct. 2, 1989]

Subpart 56.35—Expansion, Flexibility and Supports

§ 56.35–1 Pipe stress calculations (replaces 119.7).

(a) A summary of the results of pipe stress calculations for the main and auxiliary steam piping where the design temperatures exceed 800 °F shall be submitted for approval. Calculations shall be made in accordance with one of the recognized methods of stress analysis acceptable to the Marine Safety Center to determine the magnitude and direction of the forces and movements at all terminal connections, anchor and junction points, as well as the resultant bending stress, longitudinal pressure stress, torsional stress, and combined expansion stress at all such points. The location of the maximum combined stress shall be indicated in each run of pipe between anchor points.

(b) Special consideration will be given to the use of the full tabulated value of S in computing S_h and S_c where all material used in the system is subjected to additional nondestructive testing as specified by the Marine Safety Center, and where the calculations prescribed in 119.6.4 and 102.3.2 of ANSI-B31.1 and § 56.07–10 are performed. The nondestructive testing procedures and method of stress analysis shall be approved by the Marine Safety Center prior to the submission of computations and drawings for approval.

[CGD 77–140, 54 FR 40607, Oct. 2, 1989]

§ 56.35–10 Nonmetallic expansion joints (replaces 119.5.1).

(a) Nonmetallic expansion joints certified in accordance with subpart 50.25

of this subchapter are acceptable for use in piping systems.

(b) Nonmetallic expansion joints must conform to the standards listed in Table 56.60–1(b) of this part. Nonmetallic expansion joints may be used within their specified pressure and temperature rating in vital and nonvital machinery sea connections inboard of the skin valve. These joints must not be used to correct for improper piping workmanship or misalignment. Joint movements must not exceed the limits set by the joint manufacturer.

[CGD 77–140, 54 FR 40607, Oct. 2, 1989]

§ 56.35–15 Metallic expansion joints (replaces 119.5.1).

(a) Metallic expansion joints certified in accordance with subpart 50.25 of this subchapter are acceptable for use in piping systems.

(b) Metallic expansion joints must conform to the standards listed in Table 56.60–1(b) of this part and may be used within their specified pressure and temperature rating.

[CGD 77–140, 54 FR 40607, Oct. 2, 1989]

Subpart 56.50—Design Requirements Pertaining to Specific Systems

§ 56.50–1 General (replaces 122.6 through 122.10).

The piping requirements in this subpart shall apply in lieu of requirements in 122.6 through 122.10 of ANSI-B31.1. Installation requirements applicable to all systems:

(a) Where pipes and scuppers are carried through watertight or oiltight bulkheads, decks or tank tops, or are carried through fire control bulkheads and decks, the integrity of the structure shall be maintained. Lead or other heat sensitive materials shall not be used in piping systems which make such bulkhead or deck penetrations where the deterioration of such systems in the event of fire would impair the integrity of the bulkheads or decks. (For plastic pipe installations, see § 56.60–25(a).) Where plate insert pads are used, bolted connections shall have threads tapped into the plate to a depth of not less than the diameter of the bolt. If welded, the pipe or flange shall be welded to both sides of the plating. Openings in structure through which pipes pass shall be reinforced where necessary. Flanges shall not be bolted to bulkheads so that the plate forms a part of the joint. Metallic materials having a melting point of 1,700 °F. or less are considered heat sensitive and if used must be suitably insulated.

(b)(1) Pipes piercing the collision bulkhead shall be fitted with screwdown valves operable from above the bulkhead deck and the valve shall be fitted inside the forepeak tank adjacent to the collision bulkhead. The pipe penetrating the collision bulkhead shall be welded to the bulkhead on both sides. On new installations or replacement in vessels of 150 gross tons and over, the valve body shall be of steel or ductile cast iron.

(2) Passenger vessels shall not have the collision bulkhead pierced below the margin line by more than one pipe conveying liquids in the forepeak tank except that if the forepeak tank is divided to hold two different kinds of liquids, the collision bulkhead may be pierced below the margin line by two pipes, provided there is no practical alternative to the fitting of the second pipe and further provided the safety of the vessel is maintained.

(c) Valves and cocks not forming part of a piping system are not permitted in watertight subdivision bulkheads, however, sluice valves or gates in oiltight bulkheads of tankships may be used if approved by the Marine Safety Center.

(d) Piping shall not be run over or in the vicinity of switchboards or other electrical equipment if avoidable. When such leads are necessary, welded joints only shall be used and provision shall be made to prevent leakage from damaging the equipment.

(e) Stuffing boxes shall not be used on deep tank bulkheads, double bottoms or in any position where they cannot be easily examined. This requirement does not apply to ore carriers operating on the Great Lakes or cargo lines of oil tankers.

(f) Piping systems shall be installed so that under no condition will the operation of safety or relief valves be impaired.